# Dilatory Start Upon Green Signals When Spacing Between Cars Insufficient Caused by Decreased Tolerance for Unexpected Behavior at Nearer Ranges

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## Introduction

While numerous traffic studies have concluded that vehicles are able to get moving upon a traffic signal turning green more quickly when drivers leave ample space between one another upon coming to a stop at a red light, this counterintuitive finding lacks a detailed theory of causation. If drivers are educated concerning the fundamental reasons for this and other phenomena, they may be more amenable to reforming poor driving habits.

## Abstract

When traffic begins moving upon a light turning green, if vehicles are closely clustered together, the vehicles will have an advantage in a race against a parallel set of cars on a parallel road only in the case that the clustered automobiles begin moving in near-unison with absolute confidence in the behavior of the vehicle in front of them. In reality, however, no driver is going to make such an assumption concerning the behavior of the car in front of them. Assumptions are made by human drivers but these assumptions allow for a wide margin for error and that margin for error is wider the nearer the proximity of the car before a human driver.

Any deviation from the expected behavior (a certain acceleration gradient relative to the moment of brake release as well as relative to the first visible indications of acceleration) will cause a trailing driver to, at minimum, tap their brakes and to stand ready to apply brakes with greater effect. This brake tapping forces the next driver in the queue to treat this brake tapping as a potential hard-stop and to tap their brakes while evaluating the deceleration gradient of the car before them.

By contrast, when adequate spacing is allowed between stopped cars, if an acceleration gradient is not as expected or if a brake tap is utilized by a forward car, trailing drivers can choose to abstain from brake tapping and thus spare the trailing drivers from undue concern that they may need to decelerate, thereby preventing this chain reaction of brake taps.

## Conclusion

The solution to the problem, of course, is not for cars to refrain from brake tapping when they deem it to be prudent (as this would contribute to accidents,) but to leave adequate spacing between their automobile and the forward automobile when coming to a stop.